PROC. BIOL. SOC. WASH.
103(2), 1990, pp. 336–340

CANTHOCAMPTUS (*ELAPHOIDELLA*) *STRIBLINGI*, NEW SPECIES (COPEPODA: HARPACTICOIDA) FROM COSTA RICA

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Abstract.—The male of *Canthocamptus* s. l. (*Elaphoidella*) *striblingi*, a new species of harpacticoid copepod from the Monteverde Cloud Forest Preserve, Costa Rica, is distinguished within its subgenus by the biarticulate endopods of legs 1 and 4; the exopod of leg 5 and the endopod of leg 2 each having 4 setae; and the unmodified spines of the exopod of leg 4. The female is unknown.

In a collection of aquatic invertebrates from bromeliads in Costa Rica made by Dr. James B. Stribling, there occurred a single male specimen of a previously undescribed species of harpacticoid copepod belonging to the large cosmopolitan genus *Canthocamptus* Westwood, 1836, subgenus *Elaphoidella* Chappuis, 1928.

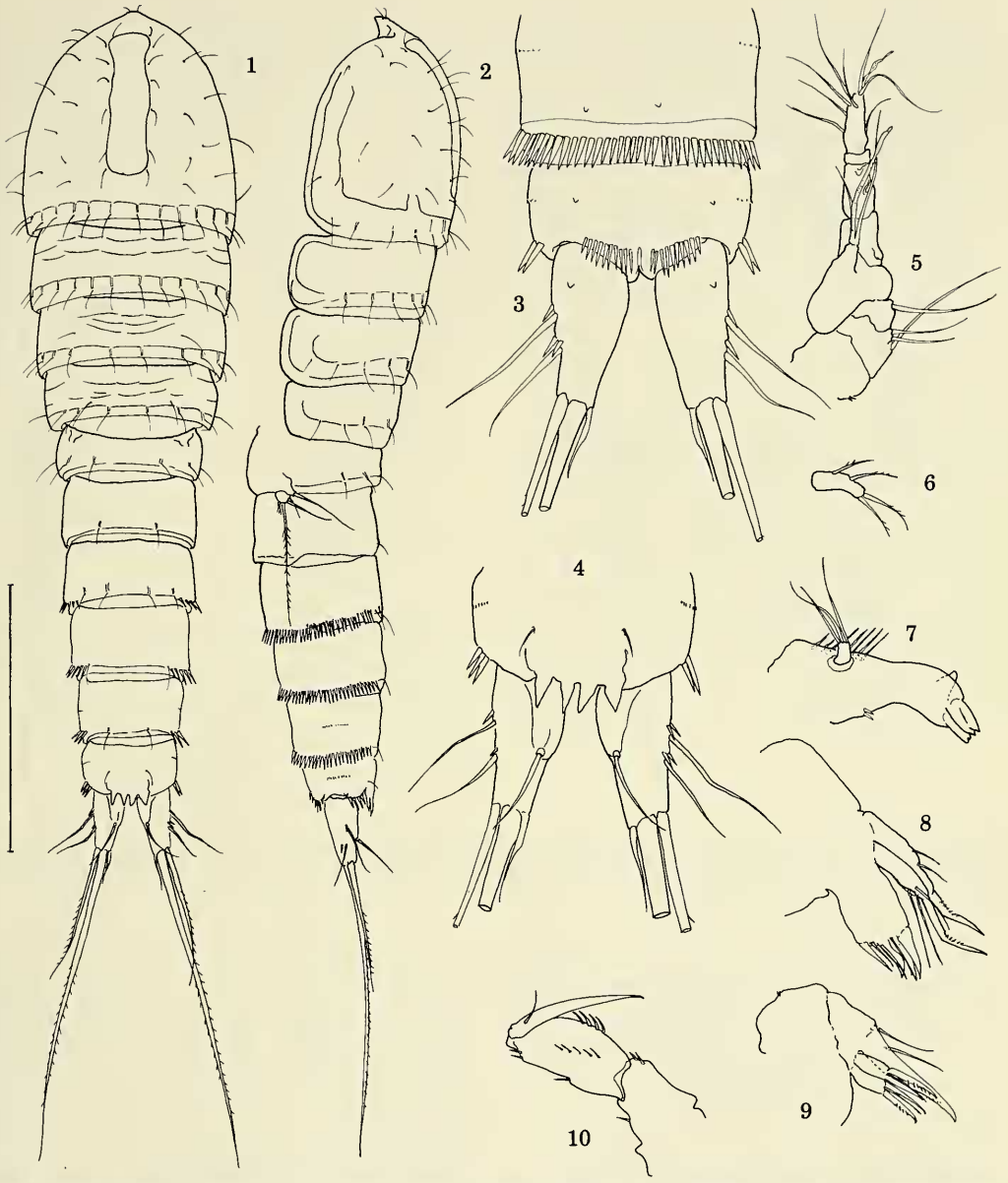
Order Harpacticoida Sars, 1903
Family Canthocamptidae Sars, 1906
Genus *Canthocamptus* Westwood, 1836
Subgenus *Elaphoidella* Chappuis, 1928
Canthocamptus (*Elaphoidella*) *striblingi*, new species
Figs. 1–15

Type material.—1 ♂, from water contained in narrow-leaved epiphytic bromeliad in Monteverde Cloud Forest Preserve, Costa Rica, altitude about 750 m, 27 Aug 1988, dissected on one slide (USNM 243304), deposited in the National Museum of Natural History, Smithsonian Institution, Washington, D.C.

Male.—Body (Figs. 1–4) cylindrical; length, excluding caudal setae, in lactic acid 0.64 mm. Cephalosome with oblong nuchal organ. Posterior hyaline frills of all somites smooth; urosomites 3–5 each with single row of uniform, slender spinules on lateral and ventral posterior margins, each spinule row continuous ventrally. Anal somite with row of 4 spinules on each side and ventral row of 10 spinules above each caudal ramus; anal operculum with 4 large, somewhat irregular teeth. Caudal ramus 2 times longer than broad, with little-developed dorsal ridge ending in dorsal seta inserted just anterior to insertion of posterior lateral seta; anterior lateral seta slightly longer than posterior lateral seta. Small innermost terminal seta of ramus about half length of ramus. Inner margin of ramus without ornament.

Rostrum (Fig. 2) projecting in lateral view, with rounded apex bearing 2 subapical rostral filaments. Antennule (Fig. 5) about half length of cephalosome, geniculate, with esthetascs on articles 4 and 8. Antenna (broken in dissection) with allobasis; uniarticulate exopod (Fig. 6) bearing 4 setae. Mandible (Fig. 7) with uniarticulate palp bearing 3 terminal setae. Maxillule (Fig. 8) with precoxal arthrite having 4 teeth and 3 setae; coxa with 1 stout seta bent at midlength and 1 slender seta; basis with 1 stout seta bent at midlength and 4 slender setae. Maxilla (Fig. 9) with 2 endites each with 3 terminal setae; basis with claw and 2 setae. Maxilliped (Fig. 10) prehensile; basis without seta; endopod with comb of 4 or 5 spinules on anterior and posterior surface, plus few spinules on dorsal surface.

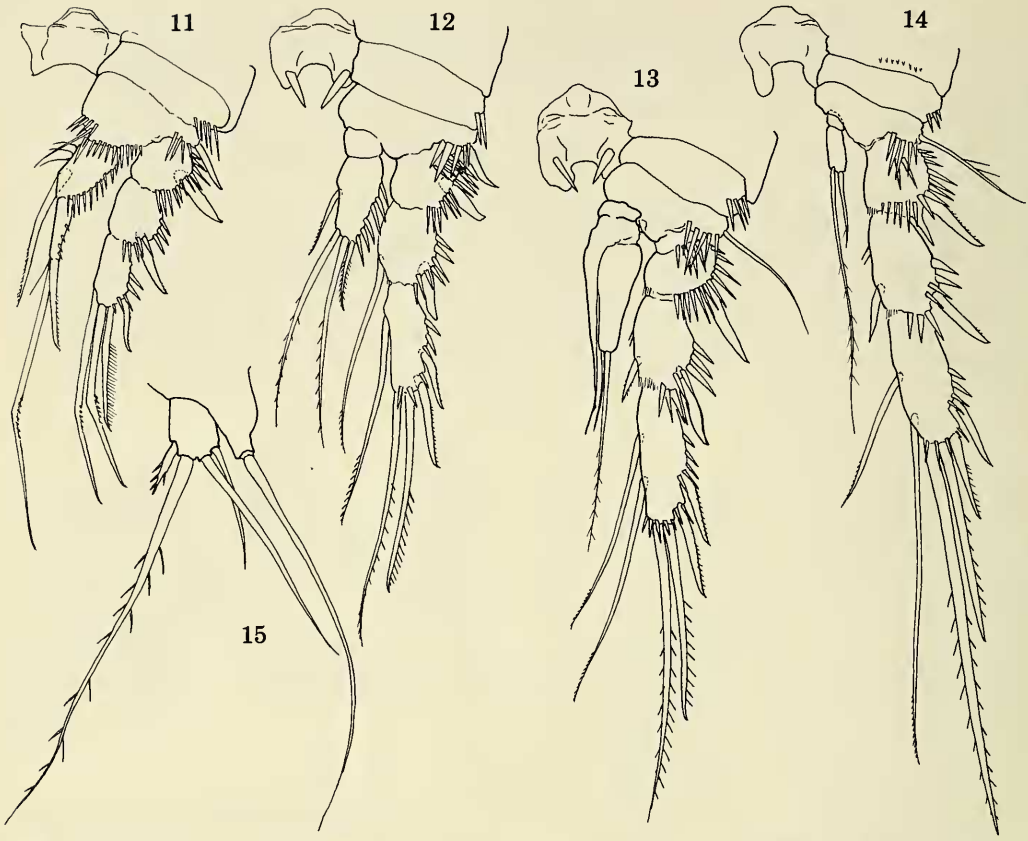
Swimming legs 1–4 (Figs. 11–14) each with exopod of 3 articles and endopod of 2 articles, except endopod of leg 3 consisting



Figs. 1–10. *Canthocamptus* (*Elaphoidella*) *striblingi*, new species, male: 1, Habitus, dorsal; 2, Habitus, lateral; 3, Posterior urosomites and caudal rami, ventral; 4, Anal somite and caudal rami, dorsal; 5, Antennule, some setae not drawn; 6, Exopod of antenna; 7, Mandible; 8, Maxillule; 9, Maxilla; 10, Maxilliped. Scale for Figs. 1 and 2, 200 μm; remaining figures not to same scale.

of 3 articles of which article 2 bears apophysis. Setation formula for major armament as follows:

Leg 1	basis 1-1	exopod 0-1; 0-1; 0,2,2	
		endopod 1-0; 1,2,0	
Leg 2	basis 0-1	exopod 0-1; 1-1; 1,2,2	
		endopod 0-0; 2,2,0	
Leg 3	basis 0-1	exopod 0-1; 1-1; 2,2,2	
		endopod 0-0; 1-0; 0,2,0	
Leg 4	basis 0-1	exopod 0-1; 1-1; 2,2,2	
		endopod 0-0; 0,2,0	



Figs. 11–15. *Canthocamptus* (*Elaphoidella*) *striblingi*, new species, male: 11, Leg 1; 12, Leg 2; 13, Leg 3; 14, Leg 4; 15, Leg 5. (Not to same scale.)

Leg 5 (Figs. 2, 15) with exopod bearing 4 setae; 2 innermost setae coarsely plumed, 2 outermost setae naked. Basipods of both fifth legs fused, lacking armament. Leg 6 (Fig. 2) represented only by simple, slightly elevated plate.

Female.—Unknown.

Etymology.—The new species is named in honor of its collector, Dr. James B. Stribling.

Remarks.—Hamond (1987 [1988]) returned 18 superspecific taxa within the family Canthocamptidae, including *Elaphoidella* Chappuis, to the status of subgenera of the genus *Canthocamptus* Westwood, pending eventual revision of the family. Approximately 140 species are presently assigned to the genus (now subgenus) *Elaphoidella* Chappuis, which was recently revised and split into four genera by Apostolov (1985). Two of Apostolov's proposed new genera correspond to Lang's (1948) *Elaphoidella* Group X, which included species having biarticulate endopods of leg 1; Apostolov's proposed *Elaphoidellopsis* is further distinguished primarily by having biarticulate endopods of leg 4. There are 18 previously known species and subspecies in this group; Apostolov's inclusion of *Elaphoidella sewelli* Chappuis, 1928 and its subspecies in *Elaphoidellopsis* is inexplicable, since these have leg 1 endopods of 3 articles and therefore fall in Apostolov's *Elaphoidella*.

The new Costa Rican species falls within *Elaphoidellopsis* Apostolov. However, Hamond (1987 [1988]) argued convincingly for retention of most canthocamptids within the broad category *Canthocamptus* until the morphology of most species, particularly type-species of the various superspecific taxa, can be described by contemporary standards. Apostolov (1985) partly redescribed *Canthocamptus elaphoides* Chappuis, 1923, type species of *Elaphoidella* Chappuis; unfortunately, *C. elaphoides,* according to Apostolov, is extremely polymorphic and the taxon may even represent a collective species! Apostolov resolved the problem of great variability in setation of swimming legs, and in other characters, of many species of *Elaphoidella* by proposing a simple scheme relying primarily on the number of articles of the swimming legs. However, he failed to present any argument as to why this arrangement might represent a more natural grouping than, for example, Lang's (1948) ten-group division. Apostolov's brief diagnoses of his proposed new genera contain mutual inconsistencies, omissions, and errors, and are seriously incomplete; for instance, his entire diagnosis of the male of *Elaphoidellopsis* consists of pointing out the "marked sexual dimorphism" in legs 3–5. It remains to be seen whether these proposed subgroups will be sustained after examination of the subgenus *Elaphoidella* by modern systematic methods. On the other hand, Apostolov has furnished a valuable service in providing a list of species of this very large group. His keys contain a number of errors, such as the placement of *E. sewelli,* mentioned above; and some apparent typographical mistakes. However, the keys are more or less mechanically useful in species discrimination, as I have employed one in the following discussion, without wishing to imply acceptance of these proposed groupings in a systematic sense.

In Apostolov's key to *Elaphoidellopsis, Canthocamptus striblingi* keys to *E.* (now *Canthocamptus*) *siolii* (Kiefer, 1967); but *C. striblingi* is easily distinguished by having a longer caudal ramus without spinules on the inner margin; the ramus of *C. siolii* is only slightly longer than broad and has a group of spinules on the distal part of the inner margin. Kiefer also reported only 3 setae on leg 2 endopod 2, but his figure (Kiefer 1967: fig. 25) seems to show a socket on the outer distal corner of that article. The 3 large opercular teeth of *C. siolii* also may not be a reliable distinguishing character, since the number of opercular teeth may vary within a species, and Kiefer described *C. siolii* from only two male specimens. Males of the three other neotropical species in this group all have 2 modified spines on leg 4 exopod 3, only 3 setae on leg 5 exopod, and differ otherwise in setation of swimming legs. These are *C. crenobia* (Petkovski, 1973), *C. einslei* (Petkovski, 1973), and *C. subcrenobia* (Petkovski, 1980), all from Cuba. *C. siolii* is known only from the upper Rio Negro, an affluent of the Amazon River, Brazil.

Acknowledgments

The University of Wisconsin (Madison) is thanked for funding Dr. J. B. Stribling's field work in Costa Rica. A Smithsonian Senior Postdoctoral Fellowship supported the preparation of this article. Several anonymous reviewers made valuable suggestions for improvement of the manuscript.

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